

Service URL	https://demo-indigo4health.archimedesmodel.com/IndiGO4Health/IndiGO4Health
Test Driver	https://demo-indigo4health.archimedesmodel.com/

Inputs

Category	Short Description	Type	Units	Schema Name	Validation	Open Issues
Required (I.e. not null)	Age	int	years	age	18 to 130	
	Gender		M/F	gender		
	Height	int	inches	height	44 to 87	
	Weight	int	pounds	weight	80 to 600	
	Current smoker	boolean		smoker		
	Prior heart attack	boolean		mi		
	Prior stroke	boolean		stroke		
	Diabetes	boolean		diabetes		
Inputs that must be requested in the UI, but are not required to be filled	Systolic blood pressure	int	mmHg	systolic	80 to 220	
	Diastolic blood pressure	int	mmHg	diastolic	40 to 130	
	Total cholesterol	int	mg/dL	cholesterol	70 to 500	
	HDL	int	mg/dL	hdl	20 to 130	
	LDL	int	mg/dL	ldl	40 to 400	
	If diabetic, HbA1c	float	%	hba1c	2 to 16	
Inputs that are optional to be requested in the UI	Cholesterol meds (yes, no)	boolean		cholesterolmeds		
	Blood pressure meds (yes no)	boolean		bloodpressuremeds		
	If yes Number of bp meds (integer 0-4+)	int		bloodpressuremedc	0, if no bp meds 1-4, if yes bp meds	
	Do you take aspirin regularly (yes no)	boolean		aspirin		
	Moderate exercise (hrs per week)	int		moderateexercise	0 to 60	
	Vigorous exercise (hrs per week)	int		vigorousexercise	0 to 30	
	Immediate family history of MI before age 55 (yes no)	boolean		familymihistory		
	Tracking ID	GUID		trackingid		People may be able to opt in to sending this field so we can follow deidentified people over time. The app developer would need to generate this randomly and ensure that two people weren't sharing the same phone for calculations.

Category	Short Description
CVD Risk	Percent risk (5 year)
	Risk percentile for age and gender
	Comparison of risk to health person for age
	Rating for age
	Absolute rating
Upper Bound of CVD Risk	Percent risk (5 year)
	Risk percentile for age and gender
	Comparison of risk to health person for age
	Rating for age
	Absolute rating
Lower Bound of CVD Risk	Percent risk (5 year)
	Risk percentile for age and gender
	Comparison of risk to health person for age
	Rating for age
	Absolute rating
Recommendation	
	Suggest you go to a pharmacy to be tested
	Suggest you schedule a visit with your physician
Intervention Information	Percent by which taking your medications reduces your risk (formerly "increase in risk if stopped taking current medications") (including aspirin
	Percent reduction in risk possible with medication
	Percent reduction in risk possible with additional 3 hours/week moderate exercise
	Percent reduction in risk possible with additional 3 hours/week vigorous exercise
	Percent reduction in risk possible with weight loss
	Number of pounds of weight loss required (5% of current weight)
	Percent reduction possible with smoking cessation
	Percent reduction possible with all interventions
Other Outputs	You may have elevated blood pressure. You should consult with your physician about starting on increasing medication to control it
	You may have elevated cholesterol levels. You should consult with your physician about starting on increasing medication to control them
	Warning code

	Type	Units	Schema Name	Validation	Open Issues
			"riskType": "CVD"		
	float	%	risk	0 to 100	
	int	%	riskPercentile	0 to 100	
	float		comparisonRisk	0 to 1000	
	int		ratingForAge	1 to 5	
	int		rating	1 to 5	
			"riskType": "UpperBoundCVD"		
	float	%	risk	0 to 100	
	int	%	riskPercentile	0 to 100	
	float		comparisonRisk	0 to 1000	
	int		ratingForAge	1 to 5	
	int		rating	1 to 5	
			"riskType": "LowerBoundCVD"		
	float	%	risk	0 to 100	
	int	%	riskPercentile	0 to 100	
	float		comparisonRisk	0 to 1000	
	int		ratingForAge	1 to 5	
	int		rating	1 to 5	
	int	maps to a list of messages	Recommendation	0/null = no warning, 1 to 20 otherwise	
	int	maps to a list of messages	DoctorRecommendation	0/null = no warning, 1 to 20 otherwise	
			Interventions		
)	float	%	IncreaseInRisk	0 to 100	
	float	%	PercentReductionInRiskWithMedication	0 to 100	
	float	%	PercentReductionInRiskWithAdditionalModel	0 to 100	
	float	%	PercentReductionInRiskWithAdditionalVigorc	0 to 100	
	float	%	PercentReductionInRiskWithWeightLoss	0 to 100	
			PoundsOfWeightLossRequired		
	float	%	PercentReductionWithSmokingCessation	0 to 100	
	float	%	PercentReductionWithAllInterventions	0 to 100	
	boolean	yes/no	ElevatedBloodPressure	yes/no	
	boolean	yes/no	ElevatedCholesterol	yes/no	
				0/null = no warning, 1 to 20 otherwise	
	int	maps to a list of warning messages			

Returned in ErrorMessageHashMap		
Code	Meaning	Comments
0	Not Authorized	
1	Invalid/Unsupported Format: %s	
2	Required Field Missing: %s	
3	Server Error (500)	
4	Server Busy	
99	%s	Unspecified error, see text for details.

Responses will be in a JSON format:

```
{
  "ErrorMessageHashMap": {
    "1": ["Error Message 1", "Error Message 2"],
    "2": ["Error Message 3", "Error Message 4"]
  },
  "Risk": [
    {
      "riskType": "CVD",
      "risk": 1.0,
      "riskPercentile": 12,
      "comparisonRisk": 20.0,
      "ratingForAge": 30,
      "rating": 40
    },
    {
      "riskType": "LowerBoundCVD",
      "risk": 2.0,
      "riskPercentile": 12,
      "comparisonRisk": 22.0,
      "ratingForAge": 32,
      "rating": 42
    },
    {
      "riskType": "UpperBoundCVD",
      "risk": 3.0,
      "riskPercentile": 13,
      "comparisonRisk": 23.0,
      "ratingForAge": 33,
      "rating": 43
    }
  ],
  "Recommendation": "yes",
  "Interventions": {
    "IncreaseInRisk": 10,
    "PercentReductionInRiskWithMedication": 30.0,
    "PercentReductionInRiskWithAdditionalModerateExercise": 40.0,
    "PercentReductionInRiskWithAdditionalVigorousExercise": 50.0,
    "PercentReductionInRiskWithWeightLoss": 60.0,
    "PoundsOfWeightLossRequired": 70,
    "PercentReductionWithDietIncludingRegularFish": 80.0,
    "PercentReductionWithDietIncludingRegularFishAndExercise": 90.0,
    "PercentReductionWithAllInterventions": 100.0,
    "RatingPossibleForAgeWithAllInterventions": 110
  },
  "ElevatedBloodPressure": true,
  "ElevatedCholesterol": false
}
```

```
e":10,"
42},{ "riskType":"
).0,"RatingForAge":
;Exercise":50.0,"
SmokingCessation":
```

There are some fields that we want to validate by comparing one field to another:

```
assert(systolic bp > diastolic bp)
```

```
assert(LDL + HDL < total cholesterol)
```


Valid requests must be submitted via a POST using the MIME type of application/x-www-form-urlencoded.
Requests to port 80 will fail with a 403 Forbidden message and direct the user to use port 443 (HTTPS).
Requests that are not POSTs will fail with a 405 Method Not Allowed message and notify the user that it only accepts POSTs.
POSTs to port 443 that do not include all required fields will fail with a 400 Bad Request message.
Values that are not expected are ignored.
Requests containing more key/value pairs than noted in the validation (+6 for flexibility) will fail with a 413 Request Entity Too Large message.
Boolean values will accept a variety of values to represent true including case insensitive versions of T, TRUE, and 1. False is assumed otherwise.
Responses will be returned in JSON format.